

If the flour appear darker than was expected from the quality of the grain, it shows the grinding to be too high, and the bolting too near; because the finer the flour, the whiter its colour.

This proceeding requires a good light; therefore, the best way is for the miller to observe to what degree of poorness he may reduce his tail flour, of middlings, so as to be safe; by which means he may judge with much more safety in the night. But the quality of the tail flour, middlings, &c., will greatly vary in different mills; for those that have the late improvements for bolting over the tail flour, grinding over the middlings, &c., can make nearly all into superfine: whereas, in those that have them not—the quality that remains next to superfine, is common, or fine flour; then rich middlings, ship stuff, &c. Those who have experience will perceive the difference in the profits. If the flour feel soft, dead and oily, yet is white, it shows the stones to have been dull, and too much pressure used. If it appear lively, yet dark-coloured, and too full of very fine specks, it shows the stones to have been too rough and sharp, and that it was ground high and bolted too closely.

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## CHAPTER XVIII.

*Directions for keeping the Mill, and the business of it, in good order.*

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### ARTICLE 116.

#### THE DUTY OF THE MILLER.

THE mill is supposed to be completely finished for merchant work, on the new plan; supplied with a stock of grain, flour casks, nails, brushes, picks, shovels, scales, weights, &c., when the millers enter on their duty.

If there be two of them capable of standing watch, or taking charge of the mill, the time is generally divided

as follows. In the day-time they both attend to business, but one of them has the chief direction. The night is divided into two watches, the first of which ends at one o'clock in the morning, when the master miller should enter on his watch, and continue till day-light, that he may be ready to direct other hands to their business early. The first thing he should do, when his watch begins, is to see whether the stones are grinding, and the cloths bolting well. And, secondly, he should review all the moving gudgeons of the mill, to see whether any of them want grease, &c.; for want of this, the gudgeons often run dry, and heat, which bring on heavy losses in time and repairs; for when they heat, they get a little loose, and the stones they run on crack, after which they cannot be kept cool. He should also see what quantity of grain is over the stones, and if there be not enough to supply them till morning, set the cleaning machines in motion.

All things being set right, his duty is very easy—he has only to see to the machinery, the grinding, and bolting, once in an hour; he has, therefore, plenty of time to amuse himself by reading, or otherwise.

Early in the morning all the floors should be swept, and the flour dust collected; the casks nailed, weighed, marked, and branded, and the packing begun, that it may be completed in the fore part of the day; by this means, should any unforeseen thing occur, there will be spare time. Besides, to leave the packing till the afternoon, is a lazy practice, and keeps the business out of order.

When the stones are to be sharpened, every thing necessary should be prepared before the mill is stopped, (especially if there be but one pair of stones to a water-wheel) that as little time as possible may be lost: the picks should be made quite sharp, and not be less than 12 in number. Things being ready, the miller is then to take up the stone; set one hand to each, and dress them as soon as possible, that they may be set to work again; not forgetting to grease the gears and spindle foot.

In the after part of the day, a sufficient quantity of

grain is to be cleaned down, to supply the stones the whole night; because it is best to have nothing more to do in the night, than to attend to the grinding, bolting, gudgeons, &c.

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ARTICLE 117.

PECULIAR ACCIDENTS BY WHICH MILLS ARE SUBJECT TO  
CATCH FIRE.

1. There being many moving parts in a mill, if any piece of timber fall, and lie on any moving wheel, or shaft, and the velocity and pressure be great, it will generate fire, and perhaps consume the mill.

2. Many people use wooden candlesticks, that may be set on a cask, bench, or the floor, and forgetting them, the candle burns down, sets the stick, cask, &c., on fire, which, perhaps, may not be discovered until the mill is in a flame.

3. Careless millers sometimes stick a candle to a cask, or post, and forget it, until it has burnt a hole in the post, or set the cask on fire.

4. Great quantities of grain sometimes bend the floor so as to press the head blocks against the top of the upright shafts, and generate fire, (unless the head blocks have room to rise as the floor settles:) mill-wrights should consider this, and be careful to guard against it as they build.

5. Branding irons, carelessly laid down, when hot, and left, might set a mill on fire.

6. The foot of the mill-stone spindle, and gudgeons, frequently heat, and sometimes set the bridge-tree or shaft on fire. It is probable, that, from such causes, mills have taken fire, when no person could discover how.

## ARTICLE 118.

## OBSERVATIONS ON IMPROVING MILL-SEATS.

I may end this part with a few observations on improving mill-seats. The improvement of a mill-seat at a great expense, is an undertaking worthy of mature deliberation, as wrong steps may increase it 10 per centum, and the improvement be incomplete: whereas, right steps may reduce it 10 per centum, and render them perfect.

Strange as it may appear, it is yet a real fact, that those who have least experience in the milling business, frequently build the best and most complete mills. The reasons are evident—

The professional man is bound to old systems, and relies on his own judgment in laying all his plans; whereas, the inexperienced man, being conscious of his deficiency, is perfectly free from all prejudice, and is disposed to call on all his experienced friends, and to collect all the improvements that are extant.

A merchant who knows but little of the miller's art, or of the structure or mechanism of mills, is naturally led to the following steps; namely:

He calls several of the most experienced millers and mill-wrights, to view the seat separately, and point out the spot for the mill-house, dam, &c., and notes their reasonings. The first, perhaps, fixes on a pretty level spot for the mill-house, and a certain rock, that nature seems to have prepared to support the breast of the dam, and an easy place to dig the race, mill-seat, &c.

The second passes by these places without noticing them; explores the stream to the boundary line; fixes on another place, the only one he thinks appointed by nature for building a lasting dam, the foundation a solid rock, that cannot be undermined by the tumbling water; fixing on a rugged spot for the seat of the house: assigning for his reasons, that the whole fall must be taken in, that all may be right at a future day. He is then informed of the opinion of the other, against which he gives substantial reasons.

The mill-wright, carpenter, and mason, who are to undertake the building, are now called together, to view the seat, fix on the spot for the house, dam, &c. After their opinion and reasons are heard, they are informed of the opinions and reasons of the others; all are joined together, and the places are fixed on. They are then desired to make out a complete draught of the plan for the house, &c., and to spare no pains; but to alter and improve on paper, till all appear to meet right, in the simplest and most convenient manner, (a week may be thus well spent,) making out complete bills of every piece of timber, the quantity of boards, stone, lime, &c.; a bill of iron work, the number of wheels, their diameters, number of cogs, &c. &c., and every thing else required in the whole work. Each person can then make out his charge, and the costs can be very nearly counted. Every species of materials may be contracted for, to be delivered in due time: the work then goes on regularly without disappointment; and when done, the improvements are complete, and a considerable sum of money saved.